

What is claimed is:

1. A method of making a coated abrasive article comprising the steps of:
  - (a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a production tool, wherein the production tool is shaped to include  
5 an at least two-by-two array of protruding units,  
wherein each protruding unit has a base that has a first side and an oppositely disposed second side,  
wherein, for each unit, its respective distal linear region, when projected on to a plane that is coplanar with its respective base, extends  
10 between a non-central point on the first side of the base and a non-central point on the second side of the base;
  - (b) introducing a backing to the outer surface of the production tool such that the slurry wets one side of the backing to form an intermediate article;
  - (c) at least partially curing the binder before the intermediate article departs from  
15 the outer surface of the production tool to form a coated abrasive article; and
  - (d) removing the coated abrasive article from the production tool.
2. The method of claim 1, wherein each base is a rectangle having length and a  
width.  
20
3. The method of claim 2, wherein the length of the rectangle is between 1 and 150 mils and the width of the rectangle is between 1 and 150 mils.
4. The method of claim 2, wherein the distance between each base and its  
25 respective distal linear region is at most 60 mils.
5. The method of claim 2, wherein the distal linear regions are substantially parallel with at least one side of their corresponding rectangular bases.

- 5
6. The method of claim 2, wherein the distal linear regions are not parallel with at least one side of their corresponding rectangular bases.
7. The method of claim 1, wherein each base has substantially the same geometry.
8. The method of claim 1, wherein each base has a different geometry.
9. The method of claim 1, wherein each base is the same size.
- 10
10. The method of claim 1, wherein at least one base is a different size than another base.
11. The method of claim 1, wherein the distal linear regions are substantially parallel with one another.
- 15
12. The method of claim 1, wherein at least one distal linear region is not parallel with another distal linear region.
13. The method of claim 1, wherein each the distance between each base and its
- 20
- respective distal linear region is substantially constant.
14. The method of claim 1, wherein the distance between each base and its respective distal linear region varies.
- 25
15. A method of abrading a surface of a workpiece comprising steps of:
- (a) providing a coated abrasive article comprising a backing having attached to at least one major surface thereof a plurality of abrasive composites, wherein the abrasive composites include an array of protruding units,

wherein each protruding unit has a base that has a first side and an oppositely disposed second side,

wherein, for each unit, its respective distal linear region, when projected on to a plane that is coplanar with its respective base, extends between a non-central point on the first side of the base and a non-central point on the second side of the base;

(b) placing the surface of said article having abrasive composites attached thereto in contact with the surface of said workpiece; and

(c) moving at least one of the surface of said article or the surface of said workpiece with respect to the other so as to abrade the surface of said workpiece.

16. A method of making a coated abrasive article comprising the steps of:

(a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a surface of a backing;

(b) introducing a production tool to the surface of the backing on which the slurry has been introduced to form an intermediate article, wherein the production tool is shaped to include

an at least two-by-two array of protruding units,

wherein each protruding unit has a base that has a first side and an oppositely disposed second side,

wherein, for each unit, its respective distal linear region, when projected on to a plane that is coplanar with its respective base, extends between a non-central point on the first side of the base and a non-central point on the second side of the base;

(c) at least partially curing the binder before the intermediate article departs from the production tool to form a coated abrasive article; and

(d) removing the coated abrasive article from the production tool.

17. The method of claim 16, wherein each base is a rectangle having length and a width.

18. The method of claim 17, wherein the length of the rectangle is between 1 and 150 mils and the width of the rectangle is between 1 and 150 mils.

5 19. The method of claim 17, wherein the distance between each base and its respective distal linear region is at most 60 mils.

20. The method of claim 17, wherein the distal linear regions are substantially parallel with at least one side of their corresponding rectangular bases.

10

21. The method of claim 17, wherein the distal linear regions are not parallel with at least one side of their corresponding rectangular bases.

22. The method of claim 16, wherein each base has substantially the same geometry.

15

23. The method of claim 16, wherein each base has a different geometry.

24. The method of claim 16, wherein each base is the same size.

20

25. The method of claim 16, wherein at least one base is a different size than another base.

26. The method of claim 16, wherein the distal linear regions are substantially parallel with one another.

25

27. The method of claim 16, wherein at least one distal linear region is not parallel with another distal linear region.

28. The method of claim 16, wherein each the distance between each base and its respective distal linear region is substantially constant.

5 29. The method of claim 16, wherein the distance between each base and its respective distal linear region varies.

30. A method of making a coated abrasive article comprising the steps of:

(a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a production tool, wherein the production tool is shaped to include

10 an at least two-by-two array of protruding units,

wherein each protruding unit has a base that has a first side and an oppositely disposed second side,

wherein, for each unit, its respective distal linear region, when projected on to a plane that is coplanar with its respective base, extends

15 between a non-central point on the first side of the base and a non-central point on the second side of the base;

(b) introducing a backing to the outer surface of the production tool such that the slurry wets one side of the backing to form an intermediate article;

(c) removing the intermediate article from the production tool; and

20 (d) curing the binder to form a coated abrasive article.

31. The method of claim 30, wherein each base is a rectangle having length and a width.

25 32. The method of claim 31, wherein the length of the rectangle is between 1 and 150 mils and the width of the rectangle is between 1 and 150 mils.

33. The method of claim 31, wherein the distance between each base and its respective distal linear region is at most 60 mils.

34. The method of claim 31, wherein the distal linear regions are substantially parallel with at least one side of their corresponding rectangular bases.

5 35. The method of claim 31, wherein the distal linear regions are not parallel with at least one side of their corresponding rectangular bases.

36. The method of claim 30, wherein each base has substantially the same geometry.  
10

37. The method of claim 30, wherein each base has a different geometry.

38. The method of claim 30, wherein each base is the same size.

15 39. The method of claim 30, wherein at least one base is a different size than another base.

40. The method of claim 30, wherein the distal linear regions are substantially parallel with one another.  
20

41. The method of claim 30, wherein at least one distal linear region is not parallel with another distal linear region.

42. The method of claim 30, wherein each the distance between each base and its  
25 respective distal linear region is substantially constant.

43. The method of claim 30, wherein the distance between each base and its respective distal linear region varies.

44. A method of making a coated abrasive article comprising the steps of:
- (a) introducing a slurry containing a mixture of a binder and a plurality of abrasive grains onto a surface of a backing;
  - (b) introducing a production tool to the surface of the backing on which the slurry  
5 has been introduced to form an intermediate article, wherein the production tool is shaped to include  
an at least two-by-two array of protruding units,  
wherein each protruding unit has a base that has a first side and an  
oppositely disposed second side,  
10 wherein, for each unit, its respective distal linear region, when  
projected on to a plane that is coplanar with its respective base, extends  
between a non-central point on the first side of the base and a non-central point  
on the second side of the base;
  - (c) removing the intermediate article from the production tool; and
  - 15 (d) curing the binder to form a coated abrasive article.
45. The method of claim 44, wherein each base is a rectangle having length and a width.
- 20 46. The method of claim 45, wherein the length of the rectangle is between 1 and 150 mils and the width of the rectangle is between 1 and 150 mils.
47. The method of claim 45, wherein the distance between each base and its respective distal linear region is at most 60 mils.
- 25 48. The method of claim 45, wherein the distal linear regions are substantially parallel with at least one side of their corresponding rectangular bases.

49. The method of claim 45, wherein the distal linear regions are not parallel with at least one side of their corresponding rectangular bases.

50. The method of claim 44, wherein each base has substantially the same geometry.

51. The method of claim 44, wherein each base has a different geometry.

52. The method of claim 44, wherein each base is the same size.

53. The method of claim 44, wherein at least one base is a different size than another base.

54. The method of claim 44, wherein the distal linear regions are substantially parallel with one another.

55. The method of claim 44, wherein at least one distal linear region is not parallel with another distal linear region.

56. The method of claim 44, wherein each the distance between each base and its respective distal linear region is substantially constant.

57. The method of claim 44, wherein the distance between each base and its respective distal linear region varies.